Rec'd March 29th
Ans — 31st

Dr G. Engelmann

Aiken S.C. March 23d 1866

Dear Sir I received your letter of the 8th inst, a few days ago. It would give me pleasure to render you all the aid I can in your elucidation of the genus Juncus, but I fear my means for doing so now are quite limited. I have not looked at my specimens for 12 or 15 years — & for the last five years I have given no attention whatever to botany. I have not the time or opportunity even to look at these things with that care & attention which their revision would require of me before expressing an opinion — & I have therefore only selected small bits from my specimens, & give you the names as I have them in my herbarium. The specimens are numbered to correspond with my own, so any ~~opinion~~ reference can be understood. These specimens were mostly all collected in the southwestern part of our state. We have some species growing wild here but I have paid no particular attention to them. With respect to the collection you wish made for your "Herb. Junceorum &c", it would be impossible for me to get there on the seaboard, unless I went down specially for that purpose — & my means are now so straitened that I could not afford the expense of travel. Those growing around me here I will very cheerfully collect if they are such as you want. I can send you specimens later in the season — or you can send me a list of such as you wish collected here.

I have never seen Nuphar sagittaefolium. N. advena is common enough. I will have my attention drawn to the genus & notify you of any discovery. With respect to your other inquiry — the Pines

I will make an examination this spring of them in search & think to female ~~arm~~ cone of P glabra is lateral, & of P mitis terminal. I find it so in the single specimen I have of these plants in flower in my herbarium, but it needs further confirmation to prove its universality. We have here P. australis taeda, mitis & inops — P. glabra I have not seen in the upper region of the state, nor P. serotina.

For 12 or 15 years past I have not done much in Phaenogamous botany. Ill health caused me to move from the low country to this high & sandy hill region — & the time I had to spare to Botany was mostly given to the Cryptogamous. Since 1860 our thoughts have been so much absorbed in the momentous events passing around us.

The calamities of war have swept through the whole South, & reduced almost every one to poverty. By the universal bankruptcy of all securities & investments, the destruction of rail roads, burning of cities & towns & private dwelling houses, there are few that have escaped. I have lost nearly every thing by bankruptcy of state banks & other securities, & find it difficult to make enough at present for the commonest necessaries of life. I am looking intent for the commencement of some kind of business by which I may be able to make a support for my family.

I am very respectfully

H W Ravenel

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Erysiphe communis Fr

S.C. Hoot Rarend

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Rec'd April 27th
Ans May 29

Aiken S.C. April 21 1866

Dear Sir Your letter of the 31st ult. was received near two weeks ago. Hearing of an opportunity to my friends in the low country, I wrote to request them to procure Pinus serotina & P. glabra for me. The time was so short to return me the specimens that they are not with sending but I have written again to request them to collect good specimens in flower & retain them until an opportunity offers of sending them to me. You know how difficult it is for the uninitiated to understand exactly the wants of a botanist. I have described minutely what I wished, & hope they will succeed better next time. I have myself collected P. australis here in flower, & will send all together when I receive those from below. I have been long aware that Dr Gray thinks P. serotina a form of P. rigida. Still P. serotina as we have it here in the low country, I am familiar. It is quite distinct from taeda & other forms species which grow here, but I have not seen enough of P. rigida in its forest growth (having only a single dried specimen) to enable me to express a decided opinion. P. serotina with us grows only in damp places, around ponds & where the soil is wet, frequently under water. Hence the name of Pond Pine. The cone is quite peculiar, & unlike that of taeda. I have always thought it a good species. It was long before I could get the claims of P. glabra as a species acknowledged. Drs Gray & Curtis & others to whom I sent specimens always called it "P. mitis". It is distinct enough in every respect from this last. I will endeavor to get specimens of P. serotina characteristic of the forms here in flower & with the old cone

so as to enable you to compare it perfectly with specimens with which you are probably more familiar than I am.

I will also have an eye to Tamaras, & do what I can for you in the course of the summer. How many specimens of each species do you require. Would it not be desirable (when the opportunity is offered) to get specimens in flower & also in mature seed so as to give a better representation of the species?

I have never seen but one species of Callitriche here, viz C. verna If I have opportunity I will examine again

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Thanks for your good opinion of us. The South went into this contest on principle & with a consciousness of right. The appeal to the sword was made on both sides. After struggling manfully for four years amid great sacrifices & suffering, she was compelled to yield to greater numbers & greater resources. She has accepted the issue in good faith — & our people have laid down their arms with as much ananimity as they were taken up. They have lost every thing but their honor, — & it was universally believed that a spirit of magnanimity would prompt the victors to ~~terms of~~ liberal & reasonable terms. The states lately in hostility to the government have given every assurance of their good faith in accepting the issues of the conflict & have complied with every requirement made upon them. But it seems that nothing can appease the vindictive feelings which party spirit has moved. We need rest & re-fore after the exhausting struggle to recover & reanimate our shatter-ed resources; — but the war of words still goes on. Instead of the olive branch ~~of peace~~, we are thrust out of the national house of Legislation — instead of Peace & Good Will, we have offered to us dishonorable conditions, taunts & gerads.

Verily man is more unforgiving than his maker

Yours very truly
H W Ravenel

I have been offering for sale & dispersing of some of my books to meet urgent necessities. I have a number of my Fungi Exsiccati still on hand, mostly of the 3, 4 & 5 volumes, having only one complete set (sets) left. These I offer at $6. per vol. Should you know of any one wanting the work I would be glad to dispose of them.

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Rec'd May 28
Ans May 29

Aiken S.C. May 23/66

Euphorb. cordifolia
Isoetes

My dear Sir

Since my last letter I have found three species of Yucca growing about this place which I can collect for you in quantity if they are wanted. I enclose specimens they are all too young to show mature seed, but other characters are sufficiently distinct. I give my notes of them on the labels.

I have also found good fruiting specimens of Pinus australis & P. inops up here, & have written to friends in the low country to get me P. glabra & P. serotina. The two former have their inflorescence lateral, & I suspect it is the same with the other four species, with which I am familiar, if my memory serves me right. My impression is also that they are all biennial in maturing their fruit & as a necessary consequence, the leaves are persistent for that length of time. The fruit & leaves formed this spring remain together on the tree until the autumn of 67 — the former maturing — & the fructification of the latter occasioning, they die & fall off, showing persistency for 18 months. This I think is the case with P. australis which I have examined with care. As far as I have observed in P. australis (& I have had an opportunity of examining a number of trees three deep, and cutting during the last month) the male & female flowers are never on the same growing period (and most of this season) — & also that the main limb which produced a female flower last year (now a half grown cone) produces another female flower this year (cone is larger) but in no case a male flower. The lateral branches however which have sprung from the main branch

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one or two years back may change to the other mode. Whether this is a law or not my observations have not been sufficient to enable me to say. Have you noticed this fact? — I am reminded of this as a subject for investigation which occurred to me ~~to look into~~ five or six years ago, but the war has prevented all such thoughts. I allude to the reproduction of the dioecious plants — the propagation of individuals. For example, here is a bunch of grapes. Our American species are all dioecio-polygamous, some individuals bearing male flowers only — others male & female & barren (hermaphrodite) & fertile. Among these seeds, then if they germinate & attain their growth, there are doubtless some barren & some fertile. Is there any mode of knowing before hand what plants you will have? The status of the future plant must be fixed & unchangeable whilst in the seed. Has this subject ever been investigated, — any clue to this mystery been discovered, or is it like the sexual relations in the generation of animals still a mystery? It would seem that there must be some law which regulates the distribution of sexes. In this I simply mean to say that as far as the proximate cause is concerned, we might expect the distribution regulated by some fixed principle. E. G. In this bunch of grapes, which we feel satisfied contains seeds which will give us both kinds of individuals, are the seeds arranged in any definite way? Will the seeds from the upper portion of the bunch give us one kind & from the lower the other? Or does each berry contain seeds of the different sexes — or are they distributed in some other way — or are no fixed or definite manner? There are perhaps idle vagaries, but I have thought that among plants, investigations may lead to some knowledge on the subject. Have you given any attention to the matter, or do you know of any investigations have been attempted?

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To return to the subject of my letter. I enclose the specimens of Yucca that you may see if you wish any of them collected in quantity for your proposed Herb. Yuccarum. I have also written to a friend in Charleston to make a collection in that neighborhood, which may supply you with some you could not get elsewhere.

As to specimens of Pinus an entire tree large to be sent by mail I will keep them until later in the season when I may have some other things to be made into a package for the Express.

In the mean time I am very respectfully yours

A W Ravenel

Dr George Engelmann

If I should be making up a package for you would you like to have any more specimens of Nitella spiculifera A. Braun, which was sent through Prof Gray to you several years ago, & by you sent to Prof Braun for determination. I have several specimens yet in my herbarium & can spare you some.

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Recd June 11th
ans — 19

Aiken S.C. June 5 1866

Dr George Engelmann

My dear Sir — Yours of the 28th ult came in yesterday, & as the time for collecting is limited, I reply at once. After sending you the specimens, I went out & collected other plants of B & C & labelled them just as you have done viz B = I marginalis var. diffusus & C = I dichotomus Ell. Since then I have found I. tenuis Willd & I. setaceus Kersh. I also saw two or three specimens of I. scerpoides or polycephalus, two grass to examine I may be able to find more. Perhaps your best plan would be to give me a list of such as you want in quantity, so that I may proceed at once to secure them without losing the time to hear from you. I never found I. marginalis (B) more abundant & larger. Just state which of the species you want, & what other, in case I find them. I commenced yesterday to collect I. dichotomus, by clipping off the entire fronds or clusters & then wrapping them in such a way as to leave them standing with just fronds & a portion of the roots. I suppose such specimens will answer your purpose. I will endeavour to have each specimen a fair representation of sort as well as influorescence, & that enough to be laid down properly in your book.

With respect to your offer to remunerate me for the collecting I will merely say that believing it is made in the kindest spirit, I will accept your proposal. I would have done this for you as a friend, & without any other reward than the gratification it afforded me to assist in such labors.

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under the peculiar circumstances, when (for the present) it is actually a struggle for bread, I think I ought not to decline any proposal by which I may realize something by my exertions, if at the same time you are receiving an equivalent. With respect to their value, I really have formed no opinion, never having had to dispose of such wares before. I am perfectly willing to leave it altogether to you to decide after you have received them. As I would have been equally willing to do it without compensation, so I shall be perfectly satisfied with whatever you think their value.

I can furnish one entire set (5 fascicles) of my Exsiccati, & another with the exception of the 1st fasc. The specimens are all thoroughly poisoned & the returns wrapped up carefully & put aside. They should be rebaked occasionally & repoisoned if necessary. In our warm climate here, I have had to repoison the specimens in the set I have put for my own use, several times. I suppose they had better be kept until every thing is ready to go in one package. If you have any Cryptogamist among your acquaintances who is in want of Morgan & Nestler's fine work "Stirpes Cryptogamae Vaporo-Rhenanae" in 12 sets I am willing to dispose of my copy. It was imported by Riley of New York several years ago for $125. I will now take $100. It contains 112 specimens in each set, representing Filices, Musci, Lichenes, Algae & Fungi, with an Index. I have no recollection of having collected Euphorbia cyathophora Ell. about here, at any rate I do not remember the plant. I enclose a specimen which I collected several years ago in the Sandhills region

near Columbia, & which I find in my herbarium without name. I have not seen Callitriche up here, but will look out for it. No Isoetes grows in this state within my knowledge. I have Psilotum triquetrum var. found in a single locality in the low country. We have Juncus rivers abundantly in the low country but not here. I never observed the fact you allude to as to the union of the cotyledons. Have you Juncus georgianus Centes a diminutive Oak I found at Stone Mt in Georgia many years ago, & sent to Dr Centes? I am not aware it has ever been found elsewhere. I can send you specimens with the fruit

Your observations on the Pines are interesting, & call my attention to make more close observations. I took a good deal of interest in the Pines of our State several years ago when I was intent upon rescuing P. glabra Walt. from low, & persistent neglect, & made examinations of the pollen, such as I will endeavor to get you the two species from below, & add what notes I may have on the subject.

The Transactions of Ac. of Sciences has just come in today. Thanks for, I shall read your observations on Juncus with much interest.

You will be doing a good service to Botany if you can elucidate the genus Iliti, & reduce the multiform varieties to some intelligible form. P. rubiana is encouraging I believe in its foliage, stem & inflorescence. The quality of fruit of course varies much, in color size & flavor. After years of our best botanists perseveral in reducing all the

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other forms to Lobnesca, austrinalis & connectalis, then the task seems almost hopeless. I find them of all varying & intermediate forms apparently; especially of austrinalis (as I suppose)

Dr A. P. Wylie of this state - (address Chester C.H. S.C.) has been very fortunate in hybridizing the genus, foreign with American, & has preserved his notes. You may be able to obtain interesting information from him on that subject.

Yours very respectfully
H. W. Henshaw

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H W Henshaw

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1. marginata observing

Here is another form of T. marginata which seems intermediate between what I call the "small" & the "large form" as described on the labels, collected at Long Beach 25th. Differing at growing with the others, so that these differences are dependent on growing to different conditions. I also compared the three forms by repeat growing them as they are growing. The chief differences I could see in the smaller form, smaller & more fragile stem, smaller leaves & more contracted fronds, fronds 6 to 10 flattened, pinnules ~~more~~ rather less numerous than usual or other & longer stem. Pinnules of the larger form, or those large & fine & very fragile, fronds 2 to 3 flattened & pinnules not so numerous or other & extent the length of pinnules having a fan-shaped tuft. The intermediate form is intermediate in size, in shape, texture, fragile & moderately elongated - fronds 6 to 10 flattened, pinnules ~~more~~ rather like the smaller form, stem rather like the larger form (not billet) but not shaped like the larger (not billet) & hairy the pinnules as long as pinnules of the smaller form. All these observations lead to the conclusion that the three forms are not specifically different, but collected from a single population, & from collected plants in general of the species, these are not enough to prove specific distinctness of these forms. But the observations of these various forms, I have made to judge of these various forms.

Rowell 1885

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Note to J. Marginatus Hedgecock

As you wish an exact description of locality, soil & local peculiarities, I will state some particulars of our situation which you can use as far as you think proper for your labels.

This section of country is known as the "Sand hill" region extending diagonally through our state from North Carolina on the N.E. to S. Georgia on the S.W. It is mostly rolling, & the general character is that of broad sand hills in some places 10 from that "a turkey may be tracked" in other, moderately fertile. In the real sand barrens the vegetation is somewhat peculiar the Pines ~~[illegible]~~ strobus, & Lucca Waterbrace (Serula Oak) making the chief forest growth, Ericaceae tomentosum, Baptisia perfoliata, Lupinus Ceratiola ericoides &c constituting the undergrowth. Just here the country is much broken & falls rapidly towards the Savannah River in a succession of hills & valleys. On most of the hill sides, the clay (common fuller's earth, etc) & white kaolin) crops out & in most places the soil is dusky, & after heavy rains quite wet. My farm is one mile West of the town of Abbeville, & it is on the dusky places that I find the three species A, B (marginatus) & C (= dichotomus). The general soil of my farm is light sandy soil, on hills only moderately fertile, but on the hill tops ~~quite~~ the soil is very poor. The specimens of P. dichotomus were obtained from dusky clay soil but I see it growing freely even on the hill tops, though much more abundant. I also find these three species & P. tenuis & P. ovatus in the soil most out, an excavation at least through the hill is full of them. [illegible] P. dichotomus collected from [illegible]

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The small form of Y. marginatus seems so constant in certain characters which distinguish it from the larger form growing here, that I collect both kinds — the large form on June 4 & 5 & the smaller June 15 & 16. I note the following difference. The small form blooms about one month earlier, my first specimens gathered sometimes in early part of May, & now June 16 with mature capsules, whilst the other commences blooming about ~~end of May or~~ beginning of June. The stems of the smaller form, are from 6 to 18 inches high, most generally single or with two to four in a cluster, weak, not flattened. Leaves with one translucent vein (midrib) whilst the other has 4 to 6 translucent veins besides the midrib. Panicle smaller, heads 4 to 6 flowered. Internodes of calyx shorter than the blunt, obovate reddish brown capsule (comparison can be made of dried) I find it growing in some localities, side by side with the larger form, & I distinguish them readily by the shape & color of panicle & the weak small stem as well as the smaller size. Even when they approach each other in size, comparing a large specimen of one with small specimen of the other, the difference in appearance is marked.

Yucca A collected June 15, 18, & 19 on my farm & also in rail road cut in front, in dense places

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List of plants put up for Dr Engelmann

Vitella [illegible] fraxelenga A Br.
Mayaca Michauxii
Drosera longifolia
Rhynchospora cymosa
" Baldwinii
ramiflora
Gracilii Ktt } I do label it but on further
filifolia ? } examination I am satisfied it is
divergens Chap. not filifolia – need further examination
Eriocaulon Ravenelii Chap. This plant has not been found elsewhere to my knowledge I have three specimens & send you one
Eryngium Ravenel Gray. I know of no other locality where this species has been found
Sclenia triglomerata
Lemna ?
Cyperus Iria Lin.
Azolla Caroliniana
Baptisia Stipulacea, Ravenel, very rare
Euphorbia cordifolia Ell.
Epidendrum conopseum
Pinus glabra
P. inops } for fruit
P. australis
Carya myristicaeformis (fruit only)
Rudbeckia ? Porteri Gray
Quercus Georgiana Curtis – species established on my specimens
Quercus (near Q. cinerea)
Eleocharis simplex
Eriophorum virginicum
Lycopodium Caroliniana
Physalis ——— ?
Juncus E. single specimen
Juncus F = an abnormal state of Rhynchospora Gracilii Ktt
Juncus tenuis single specimen

no. of specimens

Juncus repens — 265
J. setaceus — 134
" minor 100
J. pelocarpus.
v. fraternus ? 110
v. debilis 142
J. dichotomus — 125
small form 110
J. marginalis. large form 136
Do. intermediate 100
Do. small form = B 170
J. scirpoides D¹ — 120
Do D² 78
Do D³ 80
The above all alike but collected in different places
J. effusus

In view of the project which was the subject of my last letter I am making collections of different things as I find them near me just by way of a beginning.

As I can always spare you a specimen, I will put into the package occasionally such as I think may be interesting. I am very fond of the Cyperaceae (except Carexes) & look for them specially I see a fine lot of Rhynchospora nearly ready – would you like any of them? Say what orders or generally you like most, & I may send you some

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List of Plants sent to Dr Engelmann

Andropogon Ellettii
A. virginicus
A. macrourus
A. scoparius —
A. furcatus —
Acanthospermum Xanthioides
Aster dumosus
A. patens
A. ericoides
A. concolor

Amaranthus hybridus —
A. spinosus —
Aristida dichotoma
A. lanata
A. gracilis
A ——— ?
A ——— ?
Apios tuberosa
Ambrosia artemisiifolia
Asclepias verticillata
Azolla Caroliniana

Baptisia stipularia
B. perfoliata
Bartonia tenella
Berlandiera tomentosa
Bidens bipinnata
B. frondosa —
Ceratiola ericoides
Crotallaria sagittalis
Cyperus flavescens
C. strigosus —
C. Iria

Carphephorus bellidifolius
Cassia occidentalis
C. nictitans
C. chamaecrista
Croton spatulatus ?
Commanthus pedunculatus
Carex myristicaeformis fruit
C. aquatilis fruit
Chenopodium album
C. anthelminticum

Cuscuta compacta
Chysopsis mariana
C. gossypina

Dalibarda spathacea
Desmodium Dillenii
D. tenuifolium
D. paniculatum
D. marylandicum
D. lineatum
D. viridiflorum

Dactyloctenium Aegyptiacum
Dorsena longifolia

Eupatorium album
E. teucrifolium
E. ammanianum
E. coronopifolium
E. hyssopifolium

Elodea virginica
Euphorbia maculata
E. cordifolia
E. pseudacanthus
Eragrostis ~~minor~~ A. B. C.
E. pectinacea
E. capillaris

Erigeron Canadense
Erianthus contortus
E. alopecuroides
Eriogonum tomentosum
Eriophorum virginicum
Eleocharis simplex
E. tuberculata
Eryngium Ravenelii
Epidendrum conopseum
Eriocaulon Ravenelii

Fimbrystylis laxa

Gnaphalium polycephalum
Galactia sessiliflora
Gymnopogon racemosus
Gerardia purpurea
G. tenuifolia

Hypericum Sarothra
H. fasciculatum fruit
H. Drummondii
Hieracium Gronovii
Helianthus atrorubens
H. strumosus
H. angustifolius
Helianthemum autumnale

Indigofera Caroliniana
Isolepis capillaris
Ilex amelanchier

Juncus tenuis
Juncus decumbens

Kuhnia eupatorioides

Lycopodium Carolinianum
L. alopecuroides
Leersia oryzoides
Lemna ——— ?
Lepuropetalon spathulatum
Lobelia glandulosa
L. puberula
L. Nuttallii
Lechea minor
Lactuca elongata

~~[illegible]~~
Liatris paucifolia
L. gracilis
L. scariosa
L. tenuifolia
L. ——— ?
Lycopus virginicus
Ludwigia pilosa
L. linearis
L. palustris
Lespedeza violacea
L. hirta
L. violacea v. reticulata
L. (n. sp.) stylosanthoides
Magnolia Michauxii
Mitreola sessilifolia
Monarda punctata ?
M ———
Muhlenbergia diffusa
M. trichopodes
Mollugo verticillata
Nabalus Fraseri
Nitella praelonga

Oxydendrum arboreum

Petalostemon compactum
Panicum gibbum
P. anceps
P. verrucosum
P. crus galli —
P. sanguinale
P. filiforme
P. ignematum
P. divergens
Phacelis Nil
Polygala lutea
P. grandiflora
Phaseolus helvolus
P. vexillatus ?
Plucheea bifrons
Pl. fetida
Physalis lanceolata

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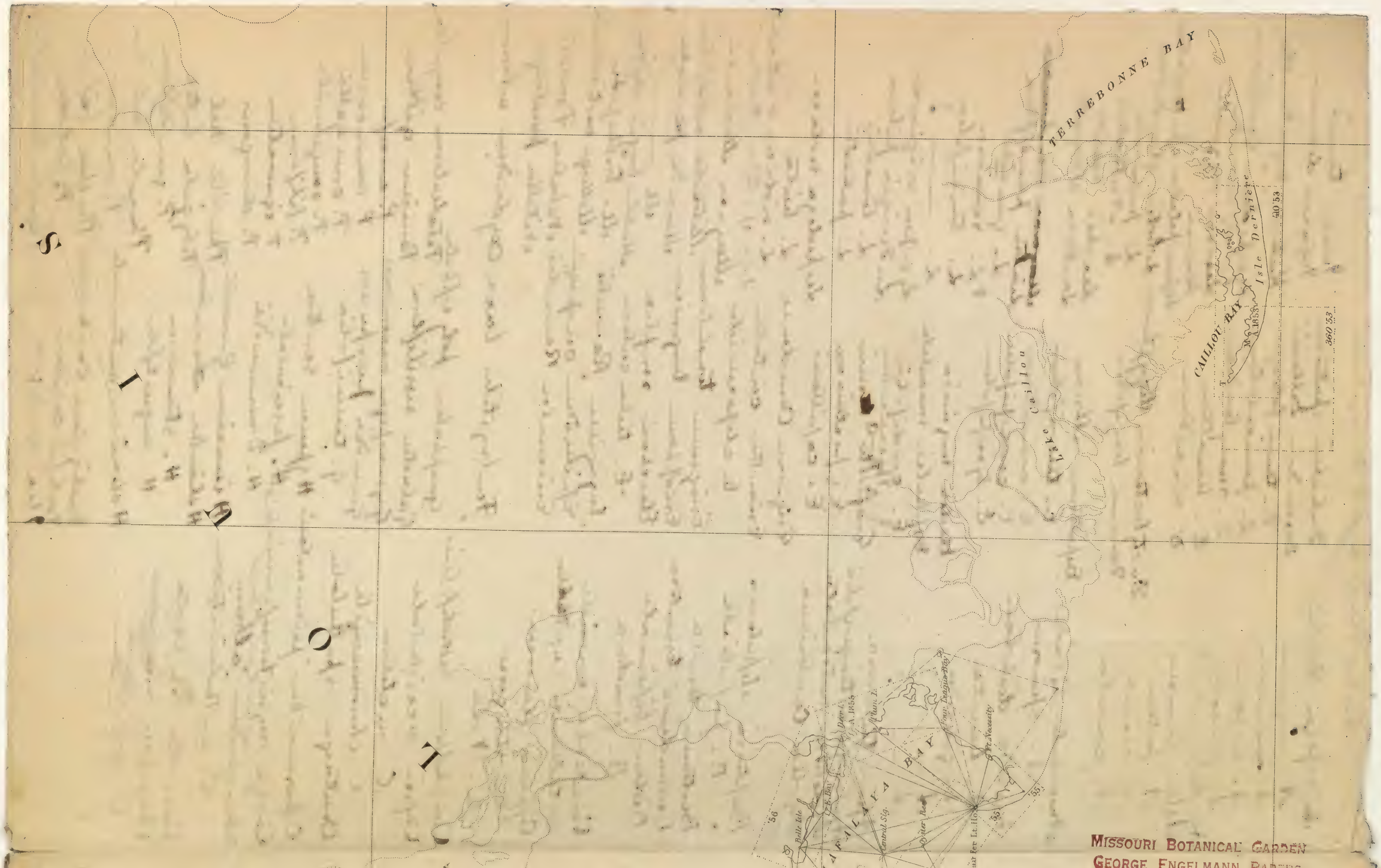

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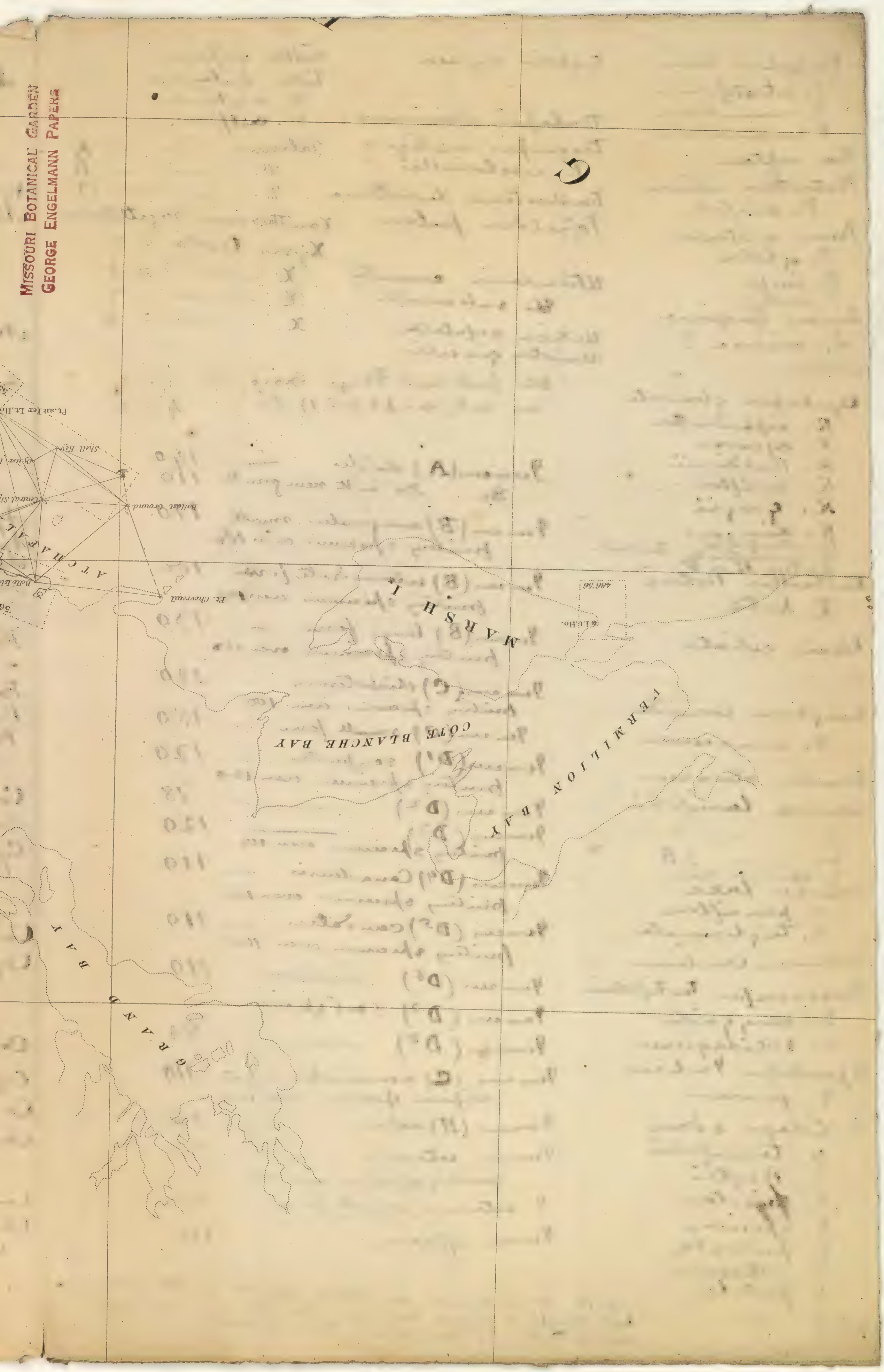

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Paspalum laevis
P. setistolium
P. racemulosum
P. undulatum
Poa vestita
Platanthera ciliaris
P. cristata
Pinus australis
P. glabra
P. inops
P. mitis
Quercus Georgiana
Q. cinerea ?

Rhynchospora glomerata
R. cephalantha
R. capitata
R. Baldwinii
R. corniculata
R. Grayii
R. divergens
R. stenophylla
R. fascicularis var. trichaeta
R. D. E F
Rudbeckia Porteri
R. hirta

Rhexia ciliata

S

Senecio cassus tertifolius
S. canigoides
S. solidaginoides
Sporobolus Indicus
S. junceus
Solidago odora
S. tenuifolia
S. Boottii
S. bicolor
S. speciosa
S. pulchella
S. altissima
S. patula
S. ——— ?

Salvia azurea

Trilaspis Americana
Triaenspis antiqua
T. asteroides
Trachystema dichotoma
Tofieldia pubens

Utricularia cornuta
U. subulata ?
Urtica capitata
Uniola gracilis

Vilfa aspera
Vitis aestivalis
V. aestivalis
V. vulpina
Viburnum ——— A
V. ——— B
V. ——— C
Xanthoxanthum sagittifolia
Xyris torta = 2
X ——— = 1
X ——— = 3
X ——— = 4

One full set Fungi Exsiccati 5 vols
one set (except vol 1) Do 4 vols

Juncus (A) debilis ———	140	100
Do Do with new growth	110	100
Juncus (B) marginatus small fruiting specimens over 100	170	100
Juncus (B) intermediate form fruiting specimens over 100	100	
Juncus (B) large form ——— fruiting specimens over 100	130	100
Juncus (C) dichotomus ——— fruiting specimens over 100	120	100
Juncus (C) small form ———	150	100
Juncus (D¹) scirpoides ——— fruiting specimens over 100	120	100
Juncus (D²) ———	78	
Juncus (D³) ——— fruiting specimens over 100	120	100
Juncus (D⁴) Canadensis ——— fruiting specimens over 100	110	100
Juncus (D⁵) candatus ——— fruiting specimens over 100	110	100
Juncus (D⁶) ~~6 slam~~	110	100
Juncus (D⁷) 5 or 6 specimens		
Juncus (D⁸) ———	80	
Juncus (E) acuminatus - v fratum viviparous specimens over 100	110	100
Juncus (H) repens ———	260	100
Juncus setaceus ——— fruiting specimens over 100	130	100
J. setaceus, small form	100	100
Juncus effusus ———	110	———
	1900	2308 1500

N.B. Of the several doubtful plants in the above list, I will be glad to have your opinion when you have examined them & have leisure time to write

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Rec'd July 9th
Ans July 13

Aiken S.C. July 2nd 1880

My dear Sir — Yours of the 18th ult. came safely to hand. I have been making good use of my time lately in laying in a large stock for you. I have collected every thing I thought would be interesting without waiting to hear from you, as time is passing & I may be called off from the work. I have got some things which you may not want — if so you can throw them aside. I have collected for in every case more than the 100 specimens (I suppose you mean to issue 100 copies of Hort. Jame) so that you may have a chance & be able to substitute inferior specimens, but I only expect you to count them for 100 specimens. I have been very particular in getting all of a species in growing in one local city & as near as possible, so that there will be a certainty of their identity in each copy of the work. Before I receive your last, I had collected three forms of S. marginatus, the small & early form = B, the largest with large loose panicle & floccose stems, & an intermediate form. Since then there present differences enough for me to distinguish them at right 20 yds off, they growing on the same locality & under similar conditions. I find only the largest form with loose flowers (2 to 3) heads, the others have mostly 10 heads. I will send them all with my notes made at the time. ~~If you don't wish~~ Then you don't wish to use, I shall not expect you to pay me for, more than the quantity you have engaged. The truth is, that after an interval of 12 or 15 years during which I have scarcely botanized at Placerpoint, I paid my guest for them so far returned, since

I have been corresponding & collecting for you, that I would not almost every day & take quite a pleasure in the work.
I have procured a fine supply of P. sclaveus — & have also specimens of a dwarfed form, which I will send, but doubt if they are worth a place as sufficiently distinct. I can find but one form of P. dichotomus, or rather I see but two heads that you mention but as far as I can observe this difference is owing to location. I see the stiff rigid heads like terminis & then with branching or recurved branches, the former in higher & drier soils, the other in more damp & richer soils. They so insensibly blend into each other, that I am satisfied here it is owing to the result of external causes, & no inherent differences. Besides P. dichotomus I have another form of P. pallescens in quantity, fine specimens.
I have also a small form of P. serpendens or allied species, collected in quantity. These specimens were only in flower. I enclose one. If it is desirable, I will collect enough of the material heads to represent the species in ten or three weeks time.
How shall I send these collections, & to whom you order?
About two years ago I sent a package to Prof. Oscar Brown of Phila: by Express with bill to be collected on delivery of his directions as to convenient mode of making the remittance. I could send by Express, but I cannot yet make out a bill until I know what you will want done with these things, nor their money values. Is there any other mode which you may prefer to make the remittance to me. Please state in your next letter. I allude to this subject now, as I am looking out for business, or employment of some kind, & should I succeed it may be necessary to close up my collecting operations at once as I could scarcely devote much time to them if I had other employment.
I have been looking over my package of old Chapman's Shawnee plants collected several years ago, & have taken out a number of things which I think will be interesting to you to send with the packages & will send to Torrey & to Asa Gray.

Yours very truly
H. N. Ellis

Since writing the above I visited out a few specimens of D. in another locality which I also enclose — & another thing which I have seen I have been before, but been forgotten to mention it

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GEORGE ENGELMANN PAPERS

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Rec'd July 26th

Aiken S.C. July 20th 1866

My dear Sir The work in which I have lately been employed, that of collecting for you, has suggested a project which if it could be successful would be giving me a remunerative employment more to my taste than any other I can think of, whilst at the same time it would be a means of disseminating more widely a knowledge of our Flora. I wish to ask your opinion upon its practicability, as your knowledge of European botanists & their wants, would enable you to form a better judgement than I could. Do you think that among the botanists, Scientific Societies, Libraries &c of this country & of Europe, there would be a sufficient demand for such collections as I could make among the Phanogamous & Cryptogamous (Filices Musci, Hepaticae, Lichenes & Fungi) as would remunerate me & give a living support. If the demand was equal to my ability to supply, I would feel no doubt of success, but I know very well that scientific men as a class, are not wealthy men, & that their collections are generally made by a system of exchanges in kind. Still I have thought that having so wide a field, there might be demand enough to make the work remunerative. If I had an agent or reference in Paris or London or some other central point who could receive orders for special collections & through whom the transactions could be effected, it would facilitate the matter

Of late years, the plan of issuing exsiccati has been a favorite

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

one, & if too much expense is not incurred in the preparation of the work, might be profitable. Of course I expect the collections to be limited to my own individual exertions, & must therefore comprise only a local flora. There

There are two modes in which this project could be carried out. One is, to make collections of every thing I find, Phanerogams & Cryptogams (as many specimens of each as were convenient) — label them properly & put them up in sets which may be offered, or portions of them only, if special desiderata are indicated. The other is to prepare determinate parcels of certain families of plants, somewhat on the plan of your Herb. Jeune. (except that it will not profess to comprise the whole of a genus) on Sullivant & Lesquereux Musci Boreali, & my Fungi Exsic. This last would be attended with more expense, but could be made remunerating by offering the proper value to them, & furnishing them with sufficient demand to get them off. My work on the Fungi has done but little more than to pay the expense of paper & binding & printing as I gave away more than half the copies. It might be got up in a less costly style. I merely throw out these suggestions as a crude outline of a plan which I would like to undertake, & upon which I would be glad to have your opinion as to its success as a remunerative occupation.

My last letter of the 2nd July is still unanswered. In it I sent you specimens of Juncus under marked H. I had just returned from collecting it, & though it looked familiar I could not readily locate it, having lost or misplaced an

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Rec'd July 26 — other half sent to Gray — Aiken July 20 1866
Ans Aug 12

some very fine specimens of that species. I collected on June 26th what I suppose is G. pulleriana, viz fraternus? in quantity. Today Aug 20, I returned to the locality & found the plants giving a fine representation of the continuation of the axis of growth. Perhaps you would like a quantity of these also. I enclose a specimen — if wanted, let me know immediately. I forgot to say I have collected G. rosea in quantity — which you can use or not as you wish. I saw one more species not yet in flower, which is probably G. scirpioides or some allied species, growing in clusters with stout stems, terete leaves, 2 to 3 ft high. It will be a week or more yet before I can get it in flower, & then some three or four weeks later before the fruiting specimens can be collected. After that is collected I will then send off your package.

I enclose specimens of (G. pulleriana) &c, collected July 20. Then it in quantity collected June 21. — also specimens of Dl.3 which I also have in quantity.

In addition to the collection of herbaceous specimens for sale, as alluded to above, I have thought I might do something in the way of collecting seeds of our native plants (forest trees, shrubs & herbs) for the large seedsmen & dealers in Europe. You could advise me in the matter probably from your familiarity with European wants. I know that some of the larger houses have expressly making collections of American seeds. If I could

do this in connection with the other, it would be very desirable, as they would not interfere with each other. Let me ask your aid & advice on these points.

I am exceedingly anxious to get some remunerative employment, & have been trying for a year past. But all kinds of business is so dull from the crippled condition of the country, ~~which is in~~ ~~[illegible] to~~ that already what little is doing, is over stocked with applicants by old business men thrown out of employment. Some such work as this would be more to my taste & previous training & habits than mere mercantile business, in which I have no experience. I have been trying, to find some thing to do for the Smithsonian institution & Bureau of Agriculture but they are filled — & I suppose a "Southern rebel" would be excluded by the test oaths. It would be very gratifying to me, to be able now to turn my botanical exercises which I formerly pursued as a recreation, into a means of support. I can say also that all my late correspondence, is renewed since the war with my old & former friends, is quite gratifying to me, & gives promise of encouragement of aid & assistance to my scientific researches & support. I have derived much satisfaction under these perplexing difficulties & trials, from the kindly feeling & sympathies exhibited by my friends.

I am very cordially yours

H W Ravenel

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

Do you take much interest in the Lycoperdaceae? I find one here lately, which must be either L. Bigelovii Tuck. or sp. nov. — Have you that species? ~~Chapman~~ Gray makes it a var. of L. cucumbrina. If you have no specimen, I will send it to Tuckerman who I gather is specially fond of L. Carolinae

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Rec'd Aug 1st near Tiffin O. July 26 1866
Ans Aug 12

My dear Sir

Yours of the 13th inst came to hand day before yesterday, passing on the road, one from me sent off last Saturday. As I have more leisure to-day than I could like to have, I reply at once.

I have examined your specimens of fungus on grapes as well as I am able, that is, with my pocket glass. I am at present, blind, that is in a Mycological or microscopical sense, having dispensed of my microscope last winter for my medical bill. I feel reluctant to part with it, as I have had it for 15 or 20 years & made all my investigations by its aid — & my good physician urges unwillingly to dispense with it, until I told him it would be a farmer to me.

I have made very little use of the microscope of late years, & did not expect to resume the study of mycology. Most of my researches & effort in work was done when I resided in the lower part of the State, about 40 miles from the Sea board. My health failed & I came up to this clay, sand-hill region for its restoration, where I have been living since 1853. In my old botanical grounds we have a very abundant & interesting flora, but here there are but few fungi. For the last 5 years, or during the war, I scarcely looked into botany — & at its close, when I found I should have to go to work for a living, I expected to lay by all such luxuries & vacations. I found to my that the use of the microscope, or any long continued efforts, affected my health so much & so invariably that I had to discontinue its use very much on that

account. It brought an nervous depression very similar to the attacks I have taken my generous health broke down.

But to return to your queries. If even without an examination of its structure & fructification it is impossible to designate the genus. I would not suppose it was a Stemonosphera from superficial or even inaccurate. You say it is destruction to the grapes. Is it not more probable that this fungus is the effect rather than the cause of the rot in grapes?

I see several different species on rotten grapes but I have never suspected them to be the cause of the rot. Decaying & dead fruit gives heavens an a favorable matrix for many of these forms. From my observations upon them among my grapevines, of which I have a large vineyard, I am inclined to think that the rot in grapes is always caused by unhealthy action of the leaves.

I have never made a microscopical examination of the grape leaf, but from its leathery or dry skin & dry atmosphere I infer the parenchyma is composed of numerous & closely compacted cells, with few air spaces & few stomata. The grape rot always follows a cool & cloudy or wet term of weather during the month of June or beginning of July, when the growth of the berry is progressing & the seeds not ripening. I suppose the leaves become overcharged with sap, from the absence of the light & warmth of the sun, & unable to discharge their functions, the fruit begins to decay. This is the first symptom. Afterwards the leaves assume an unhealthy appearance & finally change color & drop off — & as a consequence the wood of that season is made unhealthy & immature.

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I am glad you are about to take up our North American grasses. No one who has been out in the wilds & seen the numerous varieties of species of this genus can be satisfied with the present arrangement. Old Mr. La Conte a few years ago, made a dozen or more species East of the Mississippi. Double or treble that number would probably be as correctly made & yet the present restriction to fewer species seems very strong divergence to be blended. I find B. vulpina constant & without appreciable variation. The cultivated varieties of S. cappadocicus has an acute colored bracts & apparently white tendrils, whilst those with the purple bracts have purpleish tendrils. I do not see other difference.

B. latiscana in mid & foliage is nearly human & varies but little.

B. arborescens & B. corylifolia are very very similar — & I have seen specimens which puzzled me to refer to one or the other — though the extreme forms are far enough apart.

Since my last letter to you, I have collected as you requested the whole genus of H. deciduous with the rigid erect panicles like H. tenuiflora. It grows upon dry sandy

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hill (especially my pines). I also collected
I. effusus. I found a few days ago
a larger or more specimen of what I suppose
to be true I. triflorus of Ell. growing in clay
sandy woods near my farm. Most of the panicles
had 2-flowered heads. I looked very
carefully for more but without success.
Cole the other grass in wet places on my farm
I am many flowered (4 – 10). Then there
forms of marginatus collected in quantity

If I could have 2 or 3 weeks in my
old botanical grounds below, I think I could
add several more to my stock.
I may be able yet to go down before the
season is over.

Yours very truly yours
H. W. Ravenel

The attempt to have some
specimens of Yucca collected in Charleston is a failure
I received a few days ago samples of the specimens, sent by
mail. On opening the package I unfolded a large
salt water grass of some kind about a yard long
the head cut off — and of course nothing to tell what
it was — probably a Scirpus. A stranger from
my flower matting would have been as satisfactory
I wrote to the friend not to trouble himself any more
with sending them by mail
That hyacinthus I wrote about in my last letter is
a Camassia as I suppose, though I never saw it before
I enclose a small specimen

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Rec'd Sept 3
Ans Sept 17

Aiken S.C. August 27th 1866

GEORGE ENGELMANN PAPERS

My dear Sir

I received yours of 12 inst, a few days ago. I have now heard from Gray, Tuckerman, Curtis & yourself on the subject of which I write. The opinion of all agrees pretty much with the conclusion I had arrived at, viz that the work would be arduous & would exclude me from other occupations, whilst the returns would be too slow & too uncertain to rely upon for an immediate support. It might do to help along with something else. I am under obligations to all my friends for their opinion in the matter & the kind interest manifested in my behalf. The agitation of the subject has not been without good effects. I have been led into correspondence with Thos Meehan editor of Gardeners Monthly of Phila, a very intelligent florist & nursery man, in correspondence with all the large European dealers in seeds & plants, & he tells me nothing much can be done in that way either, but advises me strongly to undertake a market garden & nursery, as being highly profitable & also congenial to my former habits & tastes. He has also very kindly & liberally offered to aid me in making a start, & I have decided to adopt that plan. I am now only hesitating whether to locate it up here, or more down near Charleston where there are greater advantages. So the botanical collections & seeds must wait for first steps which lead me on. I begin to see some prospect ahead of making a living & I feel cheered & encouraged to go on. If I reach the goal of success I will remember that the first step in the ladder & the first suggestion came from my collecting for you. Now for your letter

Do I read your writing aright, that Lamarck's original Yamacraw palmetto is a "South American"

6-androus plant?

On receipt of your letter I went next day to get that spreading variety of F. fraternus, but it was all gone, — dried away & dead. Pity! for I could easily have got you the 100. You will recollect I wrote to you that I had not collected it in quan-tity but would wait until I heard from you if it was wanted. I have put several specimens in your package for your own herbarium.

The large & late Juncus reinfordianus is at length in flower, & I believe now there are two distinct forms of that. I enclose specimens. Juncus D(4) I collected in quantity on 24th about 2 miles off in an old mill pond. Juncus D(5) grows on my farm but is not yet quite ripe. The specimen enclosed is one of the most advanced & has a few open flowers. Besides the comparative of the heads, see the difference in the sepals. They are both 3-androus & both have tunicate, knotted leaves, but D4 grows in more dense clusters, & has a generally more rigid & strong stem. I will collect D5 as soon as it is ripe, in a few days.

I have Juncus D1 & D3 in fair quantities for you. ~~D2~~ also the mature fruit of D2 about 75 specimens I collected all of D2 & D3 and grows but I think it identical with D3 and grows in a more shaded place. These two last, D4 & D5, which I indeed only the heads, have stems 2½ to 3½ ft high

I have an specimen of Lilies aestivales in fruit but dried only fried leaves of Lobelia. I will give you T. vulgaris. As I am now busy collecting largely commenced with a view of making them up for sale, I will put into your package a specimen of every thing, as you say you want "every thing of" I will look especially for Arbutus, Euphorbia, Smilax Xyris & your other pets. I enclose what I suppose is Carex conjuncta.

Yours very truly W. M. Canwell

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Rec'd Sept 28 Aiken S.C. Sept 21 1866
Ans Oct 8

My dear Sir

Your letter of 7th inst reached me a few days ago. I am glad to have received it, for you, I also to have made to my own collection, the most distinct species which I had seen, then scarcely more than surprised me not before. My naming them was simply a guess of my designation. In fact, regarding a guess of my designation. I made no accountancy the number of stamens. I made no critical examination, as my time is pretty much occupied now in the collection — & knowing the very good hands where they would be well cared for. But how do you get over that difference of number of stamens on plants being 3 anthers & Chapman's Candidates = 6-anthers. When this last Dr. first attracted my notice, it was so similar in appearance to D4 (& Canadense) that I supposed them identical. It was only after the plants became developed that I saw they were different. And even now, superficially, they do not present as striking differences to the casual view as my two forms of P. marginatus. However you will see all in good time, with my notes made at the time of collection.

I inclose some of the seeds of Canadense D4 that you may see them — truly longicandatus.

~~After the receipt of your last letter~~ The day after I despatched my last letter to you, I went again to the locality when I got there unfortunately "of fractious" & by dint of arms specimens of fractious, & picking out here & there, succeeded in procuring over 100 specimens, which will do to exhibit it in that state. I will mention here that in all that I have collected

for you. I have been careful in getting the specimens from one spot & of the tufted or cespitose kind, from a few trunches growing close by, so as to ensure identity of specimens, which I know is of first importance in a thing of this kind! And in the collection of fruiting specimens, I return to the same locality for a supply.

On the 19th I went to the old mill farm two miles off when I got flowering specimens of I Canadensis (D4) in abundance, & procured about two good specimens of fruit. In a week or two I will get fruit of I. canadensis D5, & then I venture will be blamed enough for this year. If I could have gone down to my old collecting grounds in the lower part of the state, I think I could have added several more species.

Whilst I have been, I am employing my time in making general collections for sale. Mr Berkeley of England to whom I wrote about my project, immediately on receipt of my letter inserted an advertisement for me in the Gardeners Chronicle, & I have already had two applications from Europe, one for plants & one for seeds. He tells me that such collections are worth 30 $ per 100 — & Prof Gray says about $8 per 100 which is pretty much the same.

I have been out today collecting specimens of which I found 3 species on my farm. One I think is A. tortus Smith, but the other I cannot get to locate. I find after so long an interval since I have been looking into Phanerogamous, that I have to do much of my work over again. I have forgotten the species, & I also find many

things up here which I am not familiar with & which require time to ascertain.
However it is all pleasant work, & is like travelling on old ground after a long absence. It is good to have some such relaxation to divert the mind from the irritating game of politics. The political sky looks terribly overcast, but we here who have been living 5 or 6 years in storm have got somewhat accustomed to such things. The war appears passive. The storm is lowering over the North, & may burst in fury upon you in less time than a year.

In one of your letters you say, "send everything". Do you mean literally, a specimen of every thing I am collecting? As my collections mean in general, there may be many species you would not care to have, except as they represent our South Eastern Flora. I am pilfering your orchids & laying by one of every species of Phanerogam I collect. I inclose ~~a few~~ small specimens of a few things I have lately collected upon which I would be glad to have your opinion. About ten or three weeks hence I will have your package ready for you, & will send it by Express

Yours very truly
H W Ravenel

I had almost forgotten something which I have had in my mind to ask you for, & that is your photograph

of <u>centa de</u> <u>viridis</u> <u>fuga</u>. enclosed in letter. If you have a spare copy, & make an objection, I will extend it a farther.

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Recd Octob 24
Ans Nov 8

2 letters of April 21 & second offering his Fungi L $6 per vol

Aiken S.C. Oct 18 / 66

My dear Sir — Your letter of the 2nd inst, came to hand a few days ago. That Lespedeza still puzzles me, — in this viz, that a species so abundant as this is, in & around Aiken, — & found by me also in the lower country of this State several years ago (specimens of which you will find in the box) should have been so long overlooked, unless it be a foreign plant lately introduced. If I am not mistaken, I sent specimens to Prof Gray several years ago, & called his attention to its characters. In my Mycological diversions since that time, I had forgotten it, until it turned up here again. You can readily ascertain by reference to the Pandemics if it is a foreign species. I packed with my Cat, of Dr Chandler's Pandemics & Kunth's Enumeratio Plant. last winter under necessity, — & now have not the means of examination. It is clearly distinct, & far enough removed from any described American species of Lespedeza. Though not generally diffused it is very abundant in certain localities, which cover respectively its foreign origin, viz about the streets of Aiken, along the Rail road, near Road sides & on my farm, covering sometimes large patches & on to gets square. It is strictly prostrate except when very much crowded, or in rich & damp soils, when the branches become ascendent. The same remarks as to diffusion will apply to Acanthospermum Xanthicides

I have now come to the end of the collecting season, — & will send off two large boxes for you in a few days by Express. I have had on the whole a pleasant summer of it, though I had to take long horse walks occasionally. The revival of old acquaintances & now & then the sight of something new to me, kept up a lively interest. I think I have also two or three undescribed species. You will find several things in the box of which I am doubtful. There I have numbered in such a way, that I can understand your allusion to them. When you have made an examination I shall be glad to have your opinion upon them.

Since my last letter I have added three more forms of Fungi viz D^6, D^7, D^8, the first & last in quantity. My notes accompany the specimens, so I say nothing of them here.

In the boxes you will find one full set of my Fungi Exsiccati nine vols, & another with the exception of vol. 1, which I cannot furnish, making nine volumes, which you ordered early in the summer one for yourself & one for the Michigan Bot. Garden. The specimens were well preserved, & the vols. sealed up as soon as completed. They have not been opened since, but others which I have opened at various times, have all the specimens well preserved. They will need looking after occasionally, — & if troubled by insects, a wash of Corrosive Sublimate dissolved in alcohol applied to the specimens with a pewter or brush, will destroy them all. These volumes I am now selling at $8 per vol. Last winter I sold at $6, but the depreciation of the currency & the very high price of articles of necessity, justified me I thought, in raising the price. I cant recollect whether I offered them to you at $6 or 8, but whatever it was, that at which they were offered will be the price.

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With respect to the other collections, I am at a loss what price to fix. You said in one of your early letters ordering them things "you will permit me to pay you the amount you will specify for these collections — & please let me know what I owe you". I would prefer leaving it to you to affix a value after you have seen them. I have distributed many thousands of plants, some in exchange & some gratuitously, & was always contented with my work as a "labour of love". My necessities never induce me to accept your offer of compensation, but the number is so large, that the ordinary price at which I am offering my collections would make too formidable an amount. Believe me when I say, I will be perfectly satisfied with what you think a fair value. I will add this as an indication of my wishes. If you design dispersing of the copies of your work "Herb. Funcorum" &c (or many of them) so as to cover the expense of publication, I will feel better satisfied at receiving what may be considered the full value of the collections — but if you do not expect to sell any of the copies, I would be unwilling to encumber a work designed for the advancement of Botanical Knowledge with heavy expense to its author. So, my dear Sir, in this blundering way in which I have expressed myself you will see I am like the poor apothecary in Romeo & Juliet "My poverty but not my will consents".

Among the miscellaneous plants, you may find some things not wanted. You that can throw them aside. Of Miscellanea there are about 220 species, — of Fungi are 2000 specimens, not counting in the mature fruiting specimens. The amount you can transmit to me by a check on New York, which is always negotiable.

I found fruiting specimens of Pinus mitis a few days ago, & have placed them in the box. I regret not having been able to get P. serotina especially as Gray & Chapman are inclined to reduce the species, (which I consider a good one). If life is spared, I will make an effort next spring either to go myself or get some one to collect flowering specimens.

I do not expect to issue any "published sets" of plants as you infer. My collections are simply offered as specimens of Southern plants at the rate of $8 8 per cwt; as far as they go, & to the number that may be ordered. They will be labelled & placed between sheets of ordinary paper when about to be delivered, as is usual in sending out such collections just as I have done with your

Thank you for the favorite of your Photograph. I have no copy of mine to send you in return now, but whenever it is taken, you shall have one.

I enclose a list of the collections sent in the two boxes.

Very respectfully yours
H W Ravenel

MISSOURI BOTANICAL GARDEN
GEORGE ENGELMANN PAPERS

I hope you will not forget me when the last fascicle of your "Monographia Cucurbitacearum Americanarum" is published — I need scarcely add that it will give me pleasure to serve you in any way I can at any & all times.

I have a cabinet of minerals & fossils & recent shells, that I wish to dispose of. The minerals labelled & sent to me by Prof. C. U. Shepard — The recent shells from our coast & fresh water streams — the fossils from the Eocene & later formations of this State. Would any of your scientific societies or individuals in St Louis want such a thing

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MISSOURI BOTANICAL GARDEN

Recd Nov 26
Ans March 6 1867

Aiken S.C. Nov 19 1866

My dear Sir

I received your letter of the 8th inst with check for $140. inclosed, on Saturday last soon after I sent one to the Post office for you. I write again to acknowledge the receipt of this. I have had the check cashed without difficulty. I am entirely satisfied with the amount you have sent, & it has rather exceeded in some respects what I had expected. But your criticisms have given me some disquietude, & you must now ~~[illegible]~~ my defence. I have really tried my hand to get you good specimens, the best always that I could. The incentive to exertion throughout the season, has been to furnish such a set of plants as would afford a fine illustration of our species here, & I have laboured very diligently towards that object. With respect to want of perfection of the specimens, I gave them such an amount as I thought sufficient, without disfiguring or crushing too much. It is probable that ~~many~~ they have become more open from natural elasticity, after coming from the press, & remaining piled up simply in sheets in a dry atmosphere. I gave the exact number of specimens of each species or variety simply for your convenience, not expecting they were to be counted for more than 100. I found from experience in keeping down my Fungi Exsiccati, it was necessary to know in every case the number of specimens, so that I could distribute inferior specimens, to the extent of the surplus. This I thought would facilitate your labours. You will remember that you gave me a list in the early part of the summer of only a few species you wanted here. When later in the season you included I appresses & the small form of I dichotomus, it was too late to get

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GEORGE ENGELMANN PAPERS

better specimens. You must also bear in mind that when I commenced collecting in the spring, it was ~~this~~ starting in a new & untried field. I had never made special collections of Phanerogams up here, & did not know what I was to find or when to look for them. As soon as any new species was discovered it was at once secured. In that way I ~~may not have~~ collected I. dichotomus, & afterwards found it so abundant that I might have got better specimens by waiting. I. fraternus was only discovered after flowering & maturing up the fruit. For I. canadensis & I. repens I had to walk 2 or 3 miles to an old mill pond. & if they are not as good as they ought to be, you must blame the hot blazing sun I had to face. That day's exploration nearly knocked me up altogether.

If you do not issue the Herb. Fung. before another season, (I suppose even if you make a start, you will not have the entire two copies prepared) I wish you to make out a list of such species & varieties as you wish strengthened with more specimens or even to the extent of their entire number, & if my life is spared, I will collect again next summer, with the aid of the experience I have had of their "terms & localities". I wish thus as a satisfaction to myself, & to gratify the interest I feel in giving you a good representation of S. C. Fungi.

With respect to those Coprinoideis, you said "send every thing" — & I took you at your word — but you remember I said also "If there were any things you did not want, to throw them aside". I regret your disappointment at the quality of the specimens, the more, because I think you were induced to take many of the things in order to give me a lifting hand. And besides, I have always prided myself somewhat

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on the good qualities of my specimens & the manner of their preparation. Make me this list of your desiderata at your leisure, & I will try next season to replace whatever may not be thought fit for your work.

You wish me to state "what are the more common, conspicuous, or interesting & characteristic plants accompanying the different forms of Juncus" I think I have stated something of that kind in some of my notes, but I will do so again from memory

J. effusus – wet places – with J. canadensis, Scirpus Eriophorum, Eleocharis tuberculosa, Rhynchospora capitellata, R. glomerata, Androgyna mollis, Dulichium spathaceum

J. setaceus – wet places. with Lycopodium Carolinianum, Xyris (smallest species sent) Utricularia, Scirpus Eriophorum – Eleocharis obtusa. Juncus debilis

J. debilis. damp grounds. with J. candidus, Rhynchospora glomerata, Juncus marginalis, Xyris – ? (small form) Cyperus strigosus

J. repens. damp grounds. with Xyris (small form) Utricularia subulata, Drosera longifolia

J. marginalis. wet places. with J. debilis, J. candidus, J. dichotomus, Xyris torta, Fuirena squarrosa, Cyperus flavescens

J. dichotomus – common form – low grounds – more generally diffused than any other species & therefore with more mixed accompanying plants. The small form on dry sandy soil with Aristida gracilis, Sporobolus indicus & S. junceus

J. scirpoides D[1] damp grounds. with Rhynchospora rariflora, Lycopodium Carolinianum, Xyris (small form) Fuirena squarrosa, Gerardia purpurea

J. scirpoides D[3]. damp sandy soil, with J. dichotomus, Cyperus flavescens

J. Canadensis – wet ~~place~~ boggy places. with J. effusus, J. fraternus, Eleocharis tuberculosa – E. simplex – Dulichium spathaceum, Scirpus Eriophorum, Hypoxis Hitchcockii, Fuirena squarrosa

J. candidus. wet places (pine lands). with J. dichotomus, J. debilis, J. marginalis, Xyris (small form) Fuirena squarrosa, Scleria lacka, Leersia oryzoides, Andropogon macrourus, Carex glaucescens

J. fraternus. wet boggy places. with Eleocharis simplex, Scirpus Eriophorum, Dulichium spathaceum

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Has the last part of your monographs on Cuscuta, published in Proceedings of St Louis Acad. of Science, been issued yet? If so, you will remember me when it is published. You sent me the first part some months since.

Yours very truly
H W Ravenel

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I scarcely think it necessary to make any comments on the specimens sent, beyond the notes which accompany each set. They give you the means of comparison with the other numbers from you obtained from other quarters, & will enable you to come to a more satisfactory conclusion.

D^1, D^2 & D^3 are I suppose forms of I. aciculiferus — D^1 being distinct from the others, which I think an individual D^5 is undoubtedly Chufuma I. cancellatus, agreeing well with his description except in number of stamens which you say are variable.

D^4, D^6, D^7 & D^8 have some points of resemblance & some of difference. They all have long tailed seeds & are all 3-anthers except D^8 which is 5 anthers.

D^7 (only a single cluster) flowered early in Augt I think, about a month before D^4 — D^8 I found for the first time on Oct 8 growing in wet places on my farm with I cancellatus.

The latter I. cancellatus I find very abundant on my farm, & in wet Pine land brambles in the adjoining woods, readily distinguished at a glance by the lessen panicle & the very small coloured corollas.

H W Revenel Nov 1866

ASTER SACCATUS. FRIES.

ad terra lignosa, circa truncos.

OCARPUS VERNICOSUS. LINK.

Diderma vernicosum. Persoon.

Leangium vernicosum. Schwein.

ad ramulos, folia, &c.

)IDYMIUM CINEREUM. BATSCH.

in graminibus.

'IACHAEA ELEGANS. FRIES.

D. leucostyla. Schwein.

ad ramulos, folia, &c., in sylvis.

CORIAS SPONGIOSA. FRIES.

Botrytis? spongiosa. Schwein. Syn. Car.

ad ramos et folia, praesertim. Fagi et Alni.

ILBUM CINNABARINUM. MONTAGNE.

truncis dejectis Aceris.

POROCYBE CALICIOIDES. FRIES.

in rimis corticis Populi.

93. ÆCIDIUM PINI.

Peridermiu

ad folia Pir

94. ÆCIDIUM CUMIC

foliis Cimci

95. PUCCINIA XAN

foliis Xant

96. PUCCINIA ACUI

Puccinia

foliis Podo

97. PUCCINIA AMO

foliis Amo

98. PUCCINIA VER

foliis Verb

99. PUCCINIA GRA

in gramin

100. UREDO RUBIG

foliis Hor

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Rec'd Apl 12th

April 17 1868 Aiken S.C.

My dear Sir — your letter & the Hort. Venus came together yesterday — the latter in good condition except a slight appearance of rain from the Post office. I was delighted to see it, — & immediately got into the contents. Nearly nine species & well marked varieties of Yuccas in the U. S.! Pity you had not completed the century. I know I could add one or two more, if I could wait & strong enough to go on my old botanical grounds on the Sanbernard. The package is quite neatly prepared — & there is a pleasurable satisfaction in looking over such well prepared, well studied & thoroughly revised specimens of a perplexing repulsive genus. To say, thank you for the beautiful present is unnecessary after saying how much I value it. I hope you may do the same service for the Grapes when you return. I have never been satisfied with the present arrangement. Labrusca & vul-pina, perhaps are fixed & definite, but between Aest-ivalis & cordifolia I see forms which are very puzzling — intermediate & even divergent. I fear I can do you but little service hereafter among the Grapes & Pines. I have been very much of an invalid this past winter, scarcely able to leave the house. On these dry sand hills and Aiken there are but few wild grapes, & I am not able to go down about the deep uncleared swamps adjoining the seaboard, where I formerly saw such variety. If I am ever there in the season to get Pines vivaticus or P. glabra, in flower or in fruit, I will certainly not

neglect it.

"Away 15 months"! a vast period in these fast times when the political fly wheel is making such rapid revolutions. I wish you a prosperous voyage, a pleasant visit to the old country & a safe return home.

Very truly yours

Asa Gray

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Rec April 25th
Ans Apr 26

Aiken S.C. Apr 20 1870

My dear Sir

Your letter of 20 ult has been received, & laid by until I could procure specimens of Pinus in flower. I am just now disabled from doing much walking, but I sent my son yesterday to the same tree from which we got the cones of P. serotina in Nov. last (specimens of which I sent you) & he got me the specimens which I send now. I fear ~~they are~~ we have waited rather too long — the female flowers look rather advanced, but the staminate aments seem to be in good condition. We examined the tree about two weeks ago, & the flowers then not yet developed. I believe they may serve your purpose.

I also inclose a specimen from second last-drop. from a small tree near the large one, which shows the three leaves. This is quite interesting in

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elucidation of Mackaw's views on the subject.

I enclose also specimens of P. indica from Cairns yesterday, in flower.

Pinus glabra Walter does not grow near me, but I wrote to my brother about two weeks ago, who lives on the Sandwood (where I formerly lived & made my collections) & requested him to forward specimens in flower. This healthy is very feeble at present but I hope he may be able to get out & secure them for me.

If he succeeds, I will send them at once to you. I planted out seeds last Nov & have one or two young plants up & growing. If they do well you shall have one next winter.

You allude to flowering specimens of "P. australis" sent you by Cantz, as if they were seen for the first time. Did I not send you specimens two years ago, when I was

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collecting Fungi & other things for you? I am sure I need scarcely say I collected a number of them for that very purpose.

Very truly yours
H W Ravenel

Can you put me in communication with any European Algologist who would like to have American fresh water & tree species of Algae

There is a young unemployed fellow here after such for this Dept. of Cryptogamica, & I would like to give a helping hand to one who is studying the subject. I have been collecting for Dr Wm of Phila, but I think he is giving up Botany, finding it necessary to devote himself more to his profession. I know of no one else in this country who is studying the Algae.

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Rec'd May 9th
Ans. same day

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Aiken S.C. May 4 1880

My dear Sir

Your letter of 25 ult. came to hand on Saturday, & not being well enough to go out, I sent my son again to the same tree for Pinus sentinelis — specimens which I will mail to-day for you.

I made no mistake, as you suggest, in corresponding last spring cones with those of last year. I saw the young (flower) cone, but it was suppressed from its appearance, it had already flowered.

I have the specimens I send today of P. ponderosa & P. inops with the same light on the question of "apical fruit-bearing"

If I were only well enough to go out into the woods I would like to examine the other Pine also around here — viz P. australis, mitis, & taeda. With respect to sentinelis & inops, as I understand the matter, the manner of growth is as follows

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At the close of the growing season, say Oct. the axes of growth are terminated by a long cylindrical bud (1) which remains dormant until spring. This bud encloses the growth of the following year just as a grape bud encloses the leaf & clusters of the following spring.

On the approach of warm weather, the bud begins to elongate & develope itself into a terminal growing axis & about the time they are as represented in figure 2. a = female cones of this season just after flowering

b = cones of last year '69 which will mature in Nov. 1870

You will notice from the specimens sent here much more rapidly the axial or longitudinal development is than that of the lateral (phyllomic shoots or secondary leaves, so-called). Send in connection with them, let me call your

attention to the imbricate scales on the young fascicles, a point drawn by the leaf system, & I suppose following in their arrangement, the phyllotaxy of the branches & the cones.

I suppose in neither of these species, can the fructification be called terminal for here on the young cones placed on the sides of the shoots & at an angle intermediate apart.

You ask, why is P. ponderosus called the "late" one. I have never been able to discover original description of the species, but the clue to the name is to be found in Parish & Flora, when he says of this species. — "This & the preceding (viz P. ponderosa) ripen their seed only after the second year" Call the Pine that I know, ripen their seed in 18 months (2 years - so-called). Does Parish mean that P. ponderosa takes 30 months! I see no evidence of it. I told my son to look out for them

"adventitious shoots" from the body of the trunk. He saw them on one of the trees of P. aculeata — but we are left under the impression that we have also seen them in other trees — viz Caider & Miles. He will look for them in the matter.

Yucca filamentosa is undoubtedly a Y. aloifolia (as I understand it) is cultivated in Milan. I will send specimens in flower & afterwards in fruit. I have digs. of a fruit to a friend on the Scaleby road (Elliotts ground) to look at for Y. gloriosa & recurvifolia — & to send me specimens in flower & fruit.

I am feeling quite weak today & can write no more, but will make up the package to go off with this letter. I have put myself in the Doctor's hands, & have been pretty ~~well~~ confined to the house for the last 3 or 4 weeks.

P. aculeata collected May 3rd
P. Cordifolia " ~~May~~ 30th June

H M Parnell

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ans May 24th
23

Aiken S.C. May 18 1890

My dear Sir

The Peru question is becoming interesting & exciting — but alas! I can do nothing for you. I would like much to go out in the world & find the answers to these various questions which are still unsolved but I am bound in fetters which I cannot break. For some 5 or 6 weeks I have been suffering from a malady which has troubled me at intervals for many years past — a constant soreness amounting at times to acute pain in the lower part of the abdomen. My physician tells it is in the muscles of the small intestines. I have been able to do nothing after any long walk or any great bodily exertion, but quiet & rest for a few days has generally sufficed to set me right

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this attack has lasted much longer & has made me very weak. I find it difficult to get about to the house. You will understand from this, (which I am well aware of,) that it is a serious matter & the chances of recovery are doubtful. I mention these things to you, as if you professed you can familiarize with the "ills that flesh is heir to" — & you can see, if the will is there, the ability to do, is wanting. The Lord's will be done. You quite satisfied & content with whatever He may dispense to me as He knows best.

With respect to the period of maturing fruit in P. vastatrix, I will state all I know about it. Last October I went out with my son Henry, who by the way, is collecting & studying lichens in the interests of Cultrum on the farm to get Prize seeds for Agt. Department. He collected from this very tree from which

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I have been sending you specimens of it as it seemed most acceptable. One of the branches which I brought home, & which is now before me, presents the appearance

Oct 16 1864

I draw it exactly as it is. On referring to some notes taken at the time I transcribe the following. "I found one branch" (which is that above) "with the pale green cones of 3 different ages, & as the appearance (No 1) cones pale green & must have been the flowering of 1863, the oldest (No 3) must be of 1865 = 4 years ago" "I observe that the youngest (No 1) is green (alive) like those of other species, & those below (Nos 2, 3 & 4) are pale chestnut colour" Now at that time I thought it seemed to prove the period of maturation to be four years to these species, but two circumstances have appeared on the scene to make it

doubtful — 1st the peculiarity of the specimen to have adventitia cones of bell growth. When I brought home the fungus, I anticipated all the cones to open in a few days & shed their seeds. They have remained closed, & are adventitia. Hence the suspicion is that Nos 2, 3 & 4 may have been adventitia cones remaining over from previous years — & yet they had a bright healthy colour & with the unattacked staminal appearance of old cones.

2nd One of the specimens out to you last, contains two distinct sets of cones of 1870 — viz apical & lateral, separated by several inches of growth — Which fact may serve to bring together some of those which are separated.

I think that by a critical examination of the tree during the summer months, when the cones are alive & green, this question might be solved.

I will state in reply to your question 65 p. P. taeda is not very closely allied with rentina", that at a distance they may be confounded, but the cones are very distinct. I have about a bushel of each

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No. 1 May 21 1870

Since drawing seem each other in Detail & although they sometimes intermingled, there was no difficulty in separating them. The seeds also are different.

Another matter. You will aware of the fact which you mention, that each year growth may be distinguished by its beginning with a large number of bract-scales before the secondary leaves are developed, & yet I have before me a specimen which seems to contradict it. This is one of the three specimens last obtained, (two of which I sent you) Here is a drawing

The young cone of 1869 is seen below among the leaves, the two cones of 1870 are apical about one inch above the commencement of growth of 1870 in the young shoots, there is a space of about 1½ inches containing bract scales only, (just as you would expect

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to four separating two periods of growth that space will be always from of leaves & by autumn would look like the ordinary division of periods of growth.

Mill & have drawn about as much as a sick man can make do but am willing, & so will send you there nuts to crack. If I can an able Faill go out to see them questions for my own satisfaction as well as yours

very truly yours

H M Raeuel

I have written to four different persons about Pecan growing, but have nothing.

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Recd Sept 16th
ans Oct 18th

Aiken S.C. Sept 12 1870

My dear Sir

I have not heard from you since my last of June 13th, but I write now to say, I think I have ascertained pretty conclusively that Pinus serotina matures its fruit in 18 months as the stem called American species.

My seed went out on 23d July & bright buds large enough to unite many cones in various stages of growth. The cones of 1869 were in full growth (& at that date ~~the~~ more than 2/3 grown) & will undoubtedly be full grown, & mature this autumn.

A friend on the Seaboard who has also been investigating the subject for me, sent me drawings & description of the fruit of the different

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genus, & his observations (very extensive) corroborate mine here.

If a drawing be sent me, there is full proof of the fact. Doubtless the frequency of these abortive cones "on this species has given rise to the supposition that it required a longer period — the abortive cones being supposed to be second & growing & under the lid of paper. The drawing with which I enclose will serve to explain about the quantity of different seasons & that with black ink made from a specimen, shows (in June) the growth of '70, the quantity from fruit of '69 & the open cone of '68. The abortive cone differs & explains the cause of frequent doubt. Had the open cone not been there it might very readily have

been supposed that the cases of '68 & '69 are yet subjudice & to open.

I think that question may be considered settled

When you have examined the Texan Fence, I shall be glad to hear your opinion

I am very truly
H W Ravenel

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LUDLOWIANA PAPERS

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Rec'd Oct 28
Ans Nov 14

Aiken S.C. Oct 24/70

My dear Sir

Your letter of 18th inst came to hand a day or two ago. I will bear in mind your request about Yucca & the Pines. I think it would be well for you to get into direct communication with "my friend on the Coast" Dr J. H. Mellichamp of Bluffton S.C. He is an intelligent observer & seems always very willing to aid in all such inquiries — & although not any thing of a botanist, he knows many of the plants around him. He is near Ellis's grounds (Beaufort) & might be able to add many things of interest. I have got from him Pinckneya pubens, Nyssa capitatata, Sagoretia Mickauxii, Ilex Dahoon & some other things. He writes that he has sent a package of all the Pines he could find, but it

have not got received yet. If there is any thing that I think will interest you, I will share with you ... I can spare you a young specimen of Pinus flexilis, one of prize I have received from Prof. Sargent.

You wish a set of my lichens, "will select characteristic & named & arranged according to present ideas" &c

I will state what I have, so you may decide. I have been collecting lichens since I lived in the Lower country 15 or 20 years ago, & according to Tuckerman & Willey though I have given them no special study, I have become tolerably familiar with our local species. Lately Tuckerman has been good enough to go over my entire collection & give me his views on the specimens as he has expressed them in his "Synopsis of N. Am. Lichens" now just going through the press. My collection is named in accordance with these opinions.

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But I must in justice to Prof Tuckerman, say this — that in the Macrosporic specimens, (those requiring an examination of spores with a high magnifying power) I cannot hold him responsible for what I send out. He can only be responsible for the specimens he examines. This of course also applies to any & all things which are named by numbers. I do not directly pass under the microscope. I have however used every precaution & I think my specimens will all be correct. I have made up 6 sets, two of which are already disposed of at $10. per 100. My next set contains, of S. C. Lichens 129

" Pecan " 33

total 162 $16.20

They are all put up in proper packets, with name & locality of collection; & they can be systematically arranged by reference to Tuckerman's work as soon as it is issued. In my handwriting, I have all my specimens

mounted on squares of stiff white paper
there are gummed down to the leaves, so as
to be easy of examination. If I had the right
kind of paper one could get it here, I could
offer to mount the specimens for you
I shall not send, until you decide after
the above statement. If you still wish
to have the orchs, say if I must send by Express,
or take the risk of the mail. If by express,
I might send the Pieris glabra.

If my health improves as it has done lately,
I think of making a trip to Florida, provided I
can see the probability of covering my
expenses by making collections. For the
winter not much can be done. I suppose
many Phanerogams, but the Cryptos would
yield a good harvest. Is there any thing
I can do for you there? I am only in-
quiring now, so as to understand about
it, when I come to decide whether to go or
not. Can the flower & bits of leaves of
J. filamentosa which I have enclosed
the leaves are from the same plant, some of
which (the lowest) are obtuse & the clear,
more pointed. I have not yet seen any fruit
of it this season

Very respectfully,
H W Ravenel

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Ans Nov 25
Ans Dec 15

Aiken S.C. Nov. 21/70

My dear Sir

Your letter of 14th reached me a day or two ago, — & as I have just lately received the box of Pines from Dr Mellichamp, I have been making up a parcel for you to go by Express — & hope to get it off in a day or two. You will find good herb. specimens of Pinckneya pubens, Sassafras Mechanxii, Acer rubrum longifolia, Gordonia Lasianthus, Pteleia trifoliata & a leaf of Yucca gloriosa, all from Dr Mellichamp. He has so far been unable to get fruit, but promises to look out.

Of the Pines he has sent me, I have selected all such of the best specimens as I think will be interesting, making such remarks as appeared necessary. I send also Pines from Aiken, every thing perfectly labelled & explained.

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The Lichens are packed also in the same box — also some 30 to 40 Texan plants on which I would be glad to have your opinion. I find many of these S. Western plants that I am not familiar with. They are numbered. ~~There~~ Retain those you may want, & at any time, you may return the rest to me, — but you may give me your opinion by the numbers. If I can find a single plant of J. pilosa monterea, it may also go in the box.

If on receiving it, you think it may not live, let me know & I will have send another through the Post Office.

As you seem to think Pinus glabra would not stand your climate, I do not send it. But you are very welcome & it is here at your service if you wish it.

I have never been able to find fruit on an J. pilosa monterea. I have had one in my garden blossoming for several years

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but as soon as the flowers expand, they are attacked by a swarm of unique bugs that destroy the genus

I have not been able to get the proper kind of paper for mounting the Lichens; so I send them as they are in paper parcels

Yours very truly

D W Carmichael

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$\frac{118}{2} + \frac{590}{31,50}$

$\frac{638}{319}$

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